

**WHAT IS CLAIMED IS:**

1. A production method for a paper pulp, comprising steps of:
  - (a) providing a culture solution;
  - (b) adding a fiber plant into said culture solution;
  - (c) adding a suspension of a microorganism into said culture solution;
  - (d) fermentatively culturing said culture solution for preparing a pulp solution;
  - (e) boiling said pulp solution;
  - (f) pulping said pulp solution; and
  - (g) screening said pulp solution for isolating a paper pulp from said pulp solution.
2. The method as claimed in claim 1, wherein said fiber plant is a non-woody fiber plant.
3. The method as claimed in claim 1, wherein said fiber plant is pretreated by one selected from a group consisting of a relatively high pressure treatment under a relatively high temperature, a steaming treatment under a relatively high temperature, a boiling treatment under a relatively high temperature, a fumigated treatment and a soaking treatment under a room temperature.
4. The method as claimed in claim 1, wherein said fiber plant is added into said culture solution by a ratio of 4~15 %.
5. The method as claimed in claim 1, wherein said microorganism is isolated from one of a non-woody fiber plant and a livestock excrement compost.
6. The method as claimed in claim 1, wherein said microorganism is inoculated at a concentration ranged from 0 to  $10^8$  cfu / ml.
7. The method as claimed in claim 1, wherein said microorganism is a Gram positive bacterium.

8. The method as claimed in claim 1, wherein said microorganism is one selected from a group consisting of a *Bacillus licheniformis* (PMBP-m5), a *Bacillus subtilis* (PMBP-m6) and a *Bacillus amyloliquefaciens* (PMBP-m7).
9. The method as claimed in claim 1, wherein said fermentatively culturing process is proceeded at a temperature ranged from 20 to 50 °C.
10. The method as claimed in claim 1, wherein said fermentatively culturing process is one of a static culture and a shaking culture.
11. The method as claim in claim 1, wherein said fermentatively culturing process is proceeded over 0~10 days.
12. The method as claimed in claim 1, wherein said step (e) further comprises a step of adding 0 ~ 4 % (w/v) CaO into said pulp solution and boiling said pulp solution for 25~40 minutes under 120~150 °C.
13. The method as claim in claim 1, wherein said pulp solution is screened by 18~300 meshes.
14. A biopulping method for a non-woody fiber plant, comprising steps of:
  - (a) providing a culture solution;
  - (b) adding a non-woody fiber plant into said culture solution;
  - (c) adding a suspension of a microorganism into said culture solution;
  - (d) fermentatively culturing said culture solution for preparing a pulp solution;
  - (e) boiling said pulp solution;
  - (f) pulping said pulp solution; and
  - (g) screening said pulp solution for isolating a paper pulp from said pulp solution.
15. The method as claimed in claim 14, wherein said fiber plant is pretreated by one selected from a group consisting of a relatively high pressure treatment

under a relatively high temperature, a steaming treatment under a relatively high temperature, a boiling treatment under a relatively high temperature, a fumigated treatment and a soaking treatment under a room temperature.

16. The method as claimed in claim 14, wherein said inoculation concentration of a microorganism is at a range from 0 to  $10^8$  cfu / ml.
17. The method as claimed in claim 14, wherein said microorganism is one selected from a group consisting of a *Bacillus licheniformis* (PMBP-m5), a *Bacillus subtilis* (PMBP-m6) and a *Bacillus amyloliquefaciens* (PMBP-m7).
18. The method as claimed in claim 1, wherein said step (e) further comprises a step of adding 0 ~ 4 % (w/v) CaO into said pulp solution and boiling said pulp solution for 25~40 minutes under 120~150 °C.
19. The method as claim in claim 14, wherein said pulp solution is screened by 18~300 meshes.
20. A biopulp of a non-woody fiber plant, comprising the components of:
  - a non-woody fiber plant; and
  - a suspension of a microorganism,wherein said non-woody fiber plant and said suspension of said microorganism suspension are mixed and fermentatively cultured for preparing said biopulp.
21. The biopulp as claimed in claim 20, wherein said microorganism is a Gram positive bacterium.
22. The biopulp as claimed in claim 20, wherein said microorganism is one selected from a group consisting of a *Bacillus licheniformis* (PMBP-m5), a *Bacillus subtilis* (PMBP-m6) and a *Bacillus amyloliquefaciens* (PMBP-m7).